

Gale Over Mountains Cuts Power Service to Nevada

Reno Escapes Full Blast of Storm But Suffers from Electric Shortage

Sheltered by the high ridge of the Sierras, Reno and western Nevada escaped the full blast of the gale that swept across California and up the west slope of the mountains.

Main effect of the storm in this area was a shortage of electric power, caused when the supply lines between the local Sierra Pacific Power company and the big Pacific Gas and Electric company in California were shattered. Gales of wind occasionally reached twenty-five miles an hour at the weather airport, but the skies were clear and temperatures held below freezing.

Minimum temperature this morning was 23 degrees, and by noon, the mercury stood at 30 degrees, still two degrees below freezing.

The gale struck the high Sierra region about 2:30 o'clock this morning. Power lines went down as poles were broken or trees were blown across the lines. Telephone and telegraph lines were down, making it necessary for the communications companies to route their traffic by roundabout circuits.

Early this morning the always weather station atop Donner summit reported a peak wind velocity of 54 miles an hour. A few hours later, the gale still raged at a 70 mile rate.

The main trouble on the power lines occurred on a 3-mile section between Donner lake and Tenmuck. The two lines, which are located five miles apart, were struck in several places by falling trees. Repair crews from the Sierra Pacific company went into the mountains to aid the P. G. & E. men in an attempt to restore service.

Falling trees blocked the Donner summit highway several times and travel over that route was described as hazardous.

All United Air Lines flights to the west were cancelled today.

Three City reported a heavy windstorm over the lake area, while electric power service there was cut off.

When the feeder power line between the local Sierra Pacific company and the P. G. & E. system went out, the power supply for western Nevada was cut in half. Service was maintained as far as possible in the downtown district and to the Southern Pacific shops in Sparks.

In the residential district, intermittent service was furnished, and many of the industrial users were cut out during the day. Extra telephone operators were called in to handle the flood of telephone calls that poured into the office of the power company.

As the storm situation showed no signs of improvement this afternoon, power company officials warned that the night-time demand would bring even more complications, and asked local users to use as little electricity as possible tonight.

All points on the Sierra Pacific system east of Lovelock were without electricity today as the head dispatcher of the company endeavored to supply other points on the system with power. The same method of intermittent service that Reno experienced was applied to other points on the company circuits.

As a result of the power shortage, many a Reno family sat down to a cold breakfast by candlelight. Restaurants reported a sudden rush of business as others sought hot coffee and food that could not be turned out on an electric stove that had no electricity. Barber shops also benefited from the owners of electric razors who had to come down town to get the stubble scraped away.

Two Reno schools, the Mary S. Deon and McKinley park, both located north of the river, were without heat for several hours, and finally classes were dismissed and the children sent home.

The weekly luncheon of the Reno Lions club was cancelled today because the power failure prevented the El Cortez hotel preparing the regular dinner.

Clear and cold weather is the outlook for Reno and this part of Nevada tonight and Friday, the weather bureau said today. Fair skies also are expected over the Sierra Nevada region, with temperatures dropping tonight and Friday.

Softball Players Will Be Honored

Lions club softball players of last summer and fall will be guests of the Kiwanis team tonight at a dinner at the Colman, starting at seven o'clock. The Kiwanians will foot the bill for the banquet because of a wager made over a series of games played. The Lions won the series.

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Your newspaper carrier boy wants to give you good service on the delivery of your Reno Evening Gazette. If you want to contact him about delivery or if your paper is missed, please call 3161 before 7 p. m. and we will give you your carrier boy's phone number. He also appreciates your arranging to pay him regularly when he calls to collect his weekly bill. Your carrier boy is a business man in his own right, purchasing his papers at wholesale and delivering them to you at retail and he likes to keep his accounts in order each week.

Yule Program For Reno School

Traditional Christmas program at the Mount Rose school will be held December 21 and 22 at 7:30 p. m. in the school auditorium. It was announced Wednesday at a meeting of the P.T.A. Mrs. Charles Best presided at the meeting.

Pupils of the first, second and third grades will participate in the first night of the show, while fourth, fifth and sixth grade pupils will take part the second night.

During the P.T.A. meeting, dance numbers were presented by Joyce Eichenbreen and Sharon Arnerick, accompanied at the piano by MariLou Ferguson. The young dancers are pupils of the Ruth Ryan school of dancing.

Ensign Judy Mangus, of the WAVES recruiting office, gave an interesting and informative talk, after which Christmas carols were sung. Mrs. Gladys Kilford led the singing, with Sybil Fuchner playing the piano accompaniment.

Refreshments were served at the conclusion of the meeting from a table attractively decorated in the Christmas motif. Heading the refreshment committee were Mrs. A. E. Landers and Mrs. M. L. Armand. They were assisted by Mrs. James Jack Cunningham, S. S. Jaisick, M. V. Villanova and L. R. Levick.

Jewelry Store Window Smashed

Accused of breaking a large plate glass display window in the Glenshaw Jewelry company store on Virginia street at about 1:00 a. m. today, a youth identified as Harold E. Hopkins, seventeen, was arrested on a charge of destruction of property. The police said that Hopkins, who was wearing a United States navy uniform, had recently been discharged. He was being held in the city jail and the local police planned to turn him over to naval authorities.

Attorney Dies At Auburn Today

AUBURN, Calif., Dec. 9 (UP)—Charles A. Tuttle, former district attorney of Placer county and widely-known in legal circles, died here today. He was a brother of the late Reginald Tuttle, associate justice of the third district court of appeal.

HERE ON VISIT
Annie Daniels, stockman from Gold Point and Lida, both of which are near Goldfield in Esmeralda county, is spending a few days in Reno visiting his cousin, L. A. Merrigan at 492 East Ninth street.



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Christmas Seal Sale Is Started

Nevada Goal Set at \$10,000

A goal of \$10,000 in fifteen Nevada counties, is hoped to be collected through the sale of Christmas seals by the Nevada Tuberculosis association during the present drive, it was announced by officials today. The goal for last year was seven thousand dollars.

Sale of the seals is now in progress and they have been mailed to residents, as well as having sales booths set up in business districts. The association is dependent upon the sale of the Christmas seals to carry out its work.

Selling booths were opened in Reno today in the bank lobbies, and will be in charge of members of the American Legion auxiliary, the Eight and Forty, Reno school P.T.A. groups and the St. Thomas Aquinas Mothers' club.

Officers of the Nevada association are Dr. G. M. Ross, president; Ben Cole, first vice president; Mrs. Roy Hardy, second vice president; Dr. Clement Brain, secretary; Hugo Quilici, treasurer. Offices are located at 36 East Second street.

Five per cent of the funds collected through the sale of Christmas seals goes to the national headquarters, while the other ninety-five per cent is spent in Nevada.

According to a financial report issued by the Nevada office, \$2400 was contributed to the Nevada public health office, from July 1941 to July of this year. The sum was matched and used in the fight against tuberculosis in this state.

During the past six months, nearly one thousand dollars has been expended by the association for hospital, X-ray and incidental services, including educational films for schools.

WAVE RECRUITING HONOR FOR RENO

With two hundred per cent of the November quota of WAVES collected by local recruiters, the Reno station has won the "E" award in competition with twenty-one other stations in the twelfth naval district for the second consecutive month. It was announced today by F. Van Gelder, in charge of navy recruiting in Reno. The local office's quota for November was three WAVES and six women from this vicinity were enlisted.

Should the Reno station win the recruiting race from the twenty-one others again this month, the large "E" pennant will be held permanently. The Ogden station took second place for November with 140 per cent of the quota fulfilled and Salt Lake City was third with 118 per cent, the navy announced.

Business License Rates Are Changed

OROVILLE, Calif., Dec. 9 (UP)—Oroville's new city business license under which merchants will be taxed on a volume of business basis will become effective January 1. City Attorney J. F. Good said today.

It was adopted by the city council recently after several changes, including one reducing the license fee for solicitors and itinerant merchants from \$50 a month to \$25.

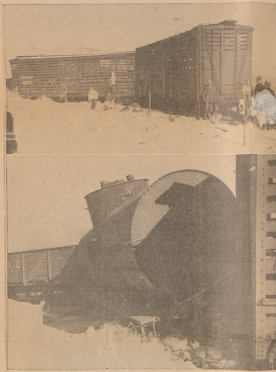
COVERS WAI



DU PONT



NEVADA AUTO
361 SOUTH VIRGINIA



DERAILMENT TIES UP V. & T. RAILROAD

Three cars of a V. & T. freight train were derailed near Steamboat this morning, blocking the eight-track line. The wrecked cars had stopped and an oil tanker had broken through the center of the derailed train. This picture was made by H. Bently, photographer from Washoe valley, who was driving in Reno when the wreck occurred.

Former Treasurer Of Minera Accused

Buckingham Charged with Shortage In District Attorney's Complaint

Signed by District Attorney Martin G. Evanson, a complaint has been filed in the office of Justice of the Peace John Andrews at Hawthorne, charging former Treasurer Clark D. M. Buckingham of Minera, county with embezzling county funds in the amount of \$12,500.67. A warrant for Buckingham's arrest has been issued by Justice of the Peace Andrews, and Evanson said today that he had received a

state, or to whose any such public money shall be intrusted, for safe keeping, or for transmission to any treasurer or other officer, or other person entitled to receive the same, who shall use any of such public money for his own private purpose, or for any purpose other than one duly authorized by law, shall, if the amount unlawfully used be

overage are intrusted, and not returned."

Buckingham, who has served eight years at Nevada county treasurer - clerk, signed last month and retired the balance. Mrs. Anita Truett, deputy of Buckingham's office for several years, has been named general treasurer by the county commissioners. For several days following Buckingham's departure, she was employed to copy checks to pay county expenses and other county expenses, with the result that the money on expenses was delayed about a week.

Pleads Guilty To Petty Theft

Ignacio Curry, 47, who has a local police record, pleaded guilty

V & Freight Train Derailed

Oil and Stock Cars Leave Rails

Three cars of a V. & T. freight train left the track about two miles north of Steamboat this morning, and two of the cars were derailed with strong force of the accident was injured, according to observers who arrived shortly after the accident. The third derailed car was a tanker full of oil, it was reported.

The locomotive remained on the tracks and no member of the train crew was injured. The scene of the derailment is near the Reno-Carlin highway to the east. Cars of the train were buckled and knaps on an angle following the accident but none was upset. Observers said the tracks appeared to be spread apart and moved about fifteen feet to the west. A crew of railroad maintenance men were said to have arrived at the scene late this morning to repair the damage and make preparations for moving the cars back on the main line.

The train left Reno early this morning and was en route to Carson. Officials of the railroad company here had no learned details of the accident up until early this afternoon.

Seth Bergevin Dies In Hawthorne

CARSON, Dec. 10.—Seth Bergevin, who operated Betty hotel at Gardnerville for a number of years, died Thursday at Hawthorne where he had moved about two years ago to undertake war work.

Born at Hawthorne, Calif. forty-five years ago, Mr. Bergevin spent most of his life in that town until he came to Nevada. He is reported by his widow, Hazel, of Hawthorne, a daughter and two sons who are residents in E. H. Reno. The daughter surviving is Miss Lillian, who is married to the late son is Louis, second lieutenant in the army air forces now serving in the South Pacific, and Donald, first lieutenant in the army artillery. The latter, who was born in Reno, and who has been given leave to attend Hawthorne.

The remains will be at the County funeral service in Carson early Monday when funeral services will be held at 2:00 p. m. under the auspices of the Masonic order at the Frederickburg, Calif., school house, near Gardnerville. Burial will be in the Frederickburg cemetery.

AVIATOR STUDENT
Pvt. Ralph E. Pecker had been assigned as aviation student, and has reported to the military outfit training detachment at Elmendorf, Wash., for preliminary training in an aviation unit. He is the son of Mr. and Mrs. J. B. Pecker of 844 South Virginia street.

RENO'S FINER HOMES

Near-Zero Weather Follows Wind Storm

Power Lines Over Sierra Nevada Restored After Damage by Gale

Near-zero weather settled over Nevada and the eastern slope of the Sierra today on the wake of Thursday's gale that knocked power lines down, interrupted wire communications and at times blocked the main water-highway over the mountains.

The temperature at the Reno airport this morning was two degrees above zero, and the weather observer said this temperature was probably a degree or two lower than that prevailing in Reno. At the Reno subdivision, just west of the city limits, the thermometer registered six degrees.

Colder spots in this region was Black, where the zeros of the Truckee and Little Truckee roads. Six degrees below zero was the low mark this morning.

Truckee's mountain the morning was zero. Placerville reported eleven degrees above zero.

Fair skies but daytime temperatures near freezing and nighttime temperatures around the zero mark can be expected tonight and Saturday, the weather bureau predicted.

Reno was the coldest spot in the state today. Elko, usually the coldest place in Nevada, had the minimum of nine degrees, the morning. The Truckee highway north of Nevada, included July 12, Austin, B. Whitehouse 18, Thousand 11, Hawthorne 23 and Las Vegas 44.

WIND DAMAGE HEAVY IN LAKE TAHOE AREA

TAHOE CITY, Calif., Dec. 10.—Heavy damage resulted in the wake of a wind storm, a severe snowed today.

The highest along the west shore of the lake was blocked by heavy snow, and the wind storm by fallen trees, and it was reported here that at least fifty trees had been blown down.

Several summer houses were struck by fallen trees in this neighborhood. Employees on the lake, stranded five men and broke along the shore, and the wind storm was reported for several miles along the lake.

Heavy damage was reported at the Herbert Pflanzacker property on the north shore of the Pflanzacker's sixty-foot owner. Alikovich which cost \$44,000, which was placed thirty

While the wind reached gale proportions along the summit of the mountains Thursday, Reno felt only a minor effect of the storm.

The weather was chilly most of the day, and only from 1.30 to 4 p. m. did the mercury rise above the freezing point. Maximum temperature for the day was thirty-seven degrees. By midnight, the mercury was at and below freezing again, and continued downward until it reached the two-degree mark early this morning.

When power lines in the high mountains supporting the Sierra Pacific system went down Thursday, western Nevada was left with barely one per cent of the normal power supply. During the day and evening, service to various residential districts was more erratic, although the business district of Reno and the Southern Pacific shops at Sparks received full service.

By 10:30 o'clock Thursday night, the damaged lines had been repaired, and full service restored. Employees of the Sierra Pacific electric were sent to the P. G. & E. crew, who were working to bridge the main-line break over the Donner summit.

The Truckee highway north of Nevada was up to traffic today, but drivers were warned that there still was a possibility of ice on the highway across the road.

Two Soldiers Are Wounded

The soldiers here Nevada have been wounded in action in the Mediterranean area, the war department announced today in a news conference.

They are Pvt. Leland Brinsford, son of Mrs. Charles Marvin Brinsford, Pflanzacker's sixty-foot owner, and Sgt. and Pvt. John A. Egan, son of Mrs. Clarence Egan of

Why does his radiator sput and wheeze?
—The dunce forgot his anti-freeze!

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU

Soda Springs Calif.
Jan. 3, 1944.

Dear Doc.:-

I plan to return to Sacramento Wednesday providing a few little experiments I am trying here are finished by that time. I am calibrating the Bouyoucos blocks against the soil moisture for some samples I collected from the pasture while there was still no snow. I am also trying to determine the possibility of differentiating the freezing point of the soil moisture from the actual freezing isotherm in the soil, through use of the Bouyoucos block. I have the kitchen window sill set up as quite a laboratory with pots of soil on the outside of the window and the various measuring instruments within the kitchen. I doubt that I can devise a procedure to determine the freezing point, in situ, of the soil, but it seemed worth trying, and as I have blocks buried in the pasture, if the experiment works, it will tell me something about the moisture-gaining capacity of a theoretically frozen soil.

I have been making readings on the telethermoscope the past two days, since there is now 29 inches of snow in the pasture. Altho the ground is at 27 degrees F. at 6 inches below the surface. The surface is at 32. degrees and the snow, 6 inches above the surface at 29 degrees and at one inch beneath the snow cover itself the temperature is 21.2 degrees from the morning reading. This indicates that the soil surface must be, in terms of temperature, very near the eutectic point of the soil solution and therefor capable of taking moisture from the snow, or releasing it to the snow. If this peculiarity is present tomorrow morning, I am going to have my hands full trying to convince some of the sceptic physicists. It is only 8 above outside now, (8:30 p.m.) and I expect it to get down to several degrees below zero before morning. Some night I will get up enough courage to sit out in that penthouse and acquire a diurnal march of temperature within the snow cover and surface foot of soil, when the temperature is dropping as rapidly as it has tonite.

My reason for returning to Sacramento is, that I have all the thermocouples wired into the pent house, and am beginning to doubt that Leeds and Mx thrup will deliver the Potentiometer as promised for measuring temperatures by thermocouple. So, I am going down and build the best substitute I can. I built one last year for Thorathwaite that was better than anything L&N turns out but too sensitive for average use. I have most of the parts in my personal "junk-box" and think I can make something, that for the time being will work.

I want to lick the temperature measuring problem this winter.

We have had considerable light, fluffy snow and the gage cans all had about 5 or more inches of snow in them this morning with no solution visible altho it had not snowed much after 7 p.m. last night. The temperature got down to 16 last night but that should not have frozen the solution. I am more and more dubious, each time I look over the gages, as to the value of the calcium chloride. If the gages had been near the end of the season, ~~the~~ contents, yesterday, the snow would have overtopped the cans. Now what to do to satisfy Bernard. I have not been able to find a single gallon of Prestone in Sacramento, although if I could find it I'd buy it out of my pocket quickly now that there are numerous gage cans here. (The Salt Lake equipment arrived, and was dumped into the four-foot snowbank in front of the tin garage. What a mess, all angle iron broken loose from original bundles, and there were 3500 pounds of peices to dig out of the snowbank and cart into the garage. It may be that I wont find some 'bill Spring'. Every Carton was broken too.

yes, it
did but
clean.

Your keys are in the drawer of your desk (Table) beneath the writing top of the drawer. A label is on the key to the Tin Garage as I put a new lock on it so as to return the lock to the Big Bertha. This key has been added to your ring.

If you return before I do, and should get exasperated with the Stevens down in the Pasture, because of loss of the door caulking in the snow each time you open the door, please do not glue it on yet as I have brought up some nice soft aluminum rivets, drills, etc and plan to rivet the caulking on. Glue wont hold all winter while only two rivets in each strip, well countersunk, will do the job. I just have not got to it yet.

Your friend, McLaughlin, stopped to see me today, (he had stopped the first night he arrived) and he took me up the slope and taught me a few ski tricks. I decided to go, on the basis that all work and no play make Jack a dull boy. I have not had a day of rest now, since Dec. 20. Christmas, New Years and Sundays were all just more work days for me. I felt entitled to the two hours I "stole" from work to go skiing. However you are privileged to "dock" me for this time if you wish ???

There is no need for you to rush up here, Wait 'till you get the brace for your back instead of trying to sleep with that plaster cast in the none to comfortable beds here.. I do miss my good springs and ~~EXICE~~ inner spring mattress here.

Well I have many things to do you tonite, so will call this a manuscript of sufficient length, for the time being.

Regards

Bob

P.S. Let me know when you
plan to come up and I'll
droped things in Seals and
come up too. R.W.G.

Mr. Leijson has
sent Rate Book # 4
Feb + March



STENOGRAPHIC NOTES



No. 10

From December 10 1943

To February 10 1944

No. 18-G

Inventory of Mrs Jones' Furniture
in our Quarters.

- 1 folding iron-bed with mattress and
- 1 oil burner heating stove 2 pillows
(also covered
on the stove)
- 1 white enamel range
- 1 office high stool
- 2 kitchen chairs 1 old heavy beam
for stool (P).
- 1 parlor chair
- 1 writing desk
- 1 small table holding triple register
- 1 dining table - broken by me.
- 1 round rough-wood table
- 1 ice-box
- 1 strip carpet in toilet
- 1 medium length of carpet-rug.
- 1 geranium kept alive by me and
the soldiers and not adopted.

The remainder is the property of
the Saha Springs Snow Project.

Plans for Next Year

I am hardly to ready to return next Monday
and shall, even if they, remain in the Pass

office next week.

The quarters should at long be left vacant. Gerald desires to complete the carpenter work and direct the painting. He wants also to read last season's journal. The instruments need adjustment. Record sheets should be filled for photographing. Quite enough for a week. Perhaps he could come to Reno to select journal and records.

Lamps

While Jeff was at dinner, I unpaired the parlor lamps. One costs tag \$1.00 but are attractive group well adapted to the room. An attractive gathering place for friends this winter, say Arthur and Frances. He and he are friends in need.

Saturday, Dec. 11

A quiet clear day.

Arthur Cavillard has reset the barograph, two H-Ts, and Friez recorder. The triple register seems to be failing without its supporting mirror.

11111

11111

The Storm

"Screaming winds sweep California"
The Sacramento Union, Friday, Dec. 10.

"a collision of high and low pressures";
 rather a "collision" says Jeff.

Wind swept from the northeast from
 Nevada to central and southern California.

Pressure at Soda Springs fell $\frac{1}{10}$ in.

→ why. What fell at Donner Summit?

Dr. Frederick Brewer might like to know.

Wind at Donner ^{Summit} 70 mi., Sacramento 45 mi.
 at Soda Springs 35 mi. barometer for the
 24 hours. The triple register failed.
 So did I. Otherwise I would have
 been at the towers clearing the wind.
 Instead I could merely look out the window
 at Kingsvale the 0415 closed the wind
 at 90 mi. But only one stat reported up.

A very unusual occurrence in direction
 "air at Sacramento dry to 8% because of
 the downslope winds".

→ What were the data from Reno and
 Donner Summit and Soda Springs?
 espec. humidity.

Pant House

at 11 am. the pant house has been

|||||

|||||

devoted by Jeff and Harry to its permanent position. The tackle moved.

I had suggested that we could have given the tension a convincing test by only we could have devoted the part house on Wednesday as planned. But he stoutly demurred quite contented without the test. Not as adventuresome as I and plainly much safer.

Jeeps

"Jumping Jeeps is the Wild for Public" just too much of a hussy to release it to the public without cutting it down.

George K. Allen, Vice President
Kilby-Cleveland Motors, Inc.

The Nevada Transport van was too much of a jeep for me. I better not try the grass-hopper.

111111

111111

Phone Conference with Mr. Fletcher
Sacramento

At 11 o'clock called up Mr. Fletcher of the U. S. Weather Bureau at Sacramento telling Dr. Gerdel that we were returning to Reno today and that we should remain there during the week and asking that he come down to Reno Tuesday.

Mr. Fletcher had already called up Dennis Jones regarding the lease and learned that he was transferring the entire property including the filling station and garages to George Stiles with the hotel. This solution may be greater security for us for George has little use for the rooms at the filling station and there will be too little income from the gasoline to pay a man or family to live there and depend on it alone. We shall write him as soon as we reach Reno.

Mrs. Johnson was very happy to see us back at Beacon Hill Lodge again and welcomes me with open arms-- a trifle rough for my broken back. Her sister-in-law is with her now making life more tolerable and apparently making it possible to obtain meals as well as rooms there.

Living

While Jeff got the penthouse roughly pulled together and one 4 x 4 timber transferred to the tin garage, I re-arranged and cleaned the office to surprise Gerdel when he arrived. It is now a comfortable and almost comradious home considering our old dormitory bed and our equipment beneath the tarpaulin in the carpenter shop.

Jeff suggests that the other lumber be left in place in the pasture and back of the hotel until Gerdel can dispose of it. Reached home soon after 5 in time for his family reunion dinner.

The Stern

Mr. Fletcher reported that the telethermoscope had arrived from Washington and that other equipment had accumulated which would be brought up to Soda Springs on Monday.

He reported also that the humidity at Sacramento on the day of the storm was as low as 98%. Gerdel has since reported that the pressure lines from the summit to Sacramento look like contours around a mountain peak. The wind gradient must, therefore, have been very strong. Ruth reports that there was a little wind at Reno. Why not obtain the traces of temperature, pressure, and humidity for Reno, Donner Summit, Soda Springs and Sacramento for a comparison of down-slope winds?

Later news in the Gazette of December 13th reports that 100 trees were blown down on the west shore of Lake Tahoe from Blackwood south to Richardsons but a report from Carnelian Bay states that only an occasional tree fell there, and these weaker trees that were uprooted by gusts of wind. No report has come in of damage from that section. We hope, therefore, that the Tree House is safe.

Monday - December 13th

In keeping with my promise to the Couillardes, I got in touch yesterday with Dr. West regarding final damages to my back. It seemed to be a matter of battering mainly, which was alleviated by liniment. But today several X-rays revealed that the first lumbar vertebra had been broken and that complete recovery could be assured only by lying in bed for two weeks under physical pressure. Strangely the part that was sorest turned out to be least so and the vital injury was scarcely noticeable. Sitting up was very comfortable and a large amount of work was accomplished but Dr. West feared that chronic weakness and pain might result if a complete re-adjustment was not made.

Report from Soda Springs

Dr. Gerdel came down on the evening train and reported that the cook stove had already been taken from the filling station by the Jones's as planned by them. Also that the roof of the penthouse was easily slipped into place by beginning at the front instead of at the back. He desires to hasten back to Soda Springs to anchor it thoroughly before the wind can affect it.

He doubts the possibility of obtaining more equipment from the Soil Conservation Service on loan and feels that the attempt to obtain too large a proportion by this means might bring it into obvious cooperation with the Weather Bureau which at the present time is being avoided. This I regret because a larger, broader, and friendlier piece of work can be accomplished by free cooperation.

At the end of next week Dr. Gerdel will return to Sacramento to bring up a full auto load of equipment and will try to arrange for a completion of the towers and particularly the bringing in of the wood before further snowfall. It may be best to put the lumber in the barn as the easiest way of keeping it out of the weather by bringing it up to the garage piece by piece.

Tuesday

December 14th

The long wait for the back to mend has now begun at the hospital. The task has been taken over as a State Industrial Insurance though we must admit that we should have avoided that lumbering jeep.

Dr. Gerdel and Jeff ^{have} been requested to try to obtain a second-hand cook stove for immediate transfer to Soda Springs Station so that Dr. Gerdel's family can have a reasonable sustenance while assisting him this week and later during the year. Meantime letters have been written to Dennis Jones and George Stiles to reach an early decision regarding the possibility of retaining our quarters. Rather than lose any enjoyment of them, we are pinning them up without cessation. We must at least somewhere.

Winifred has been requested to find some student or assistant to make copies of the journals of the project, particularly for 1942-43 to assure us against the loss of the only complete copy we now have. Copies and complete data of all experiments at Soda Springs should be kept there for study during the winter. Gerdel suggests keeping them in the penthouse as being probably more protected against fire than elsewhere. He is taking the 3 o'clock bus today for Soda Springs.

2 newspaper clippings about storm in folder

More Windshields Wrecked

In a letter dated December 28th to Merrill Bernard from Dr. Gerdel he reports that the storm of December 9th wrecked four windshields instead of the one noted by Prof. Boardman. These shields were evidently shaken loose at their fastenings and were uprooted and twisted in much the same way as occurred on January 22nd of this same year. The average wind velocity as noted by Arthur Couillard at the hotel and in the pasture was 36 miles per hour at the former and 34.7 miles per hour at the latter for the entire 24 hours from 5 o'clock December 8th to 5 o'clock December 9th. The maximum velocity must have been far higher. In contrast to this is the wind velocity of only 10 miles per hour recorded in January by the triple register with an increase of something less than 20 miles during the day. This record applies only to the anemometer at the hotel, for the anemometer in the pasture lot was not installed until later. Furthermore, the gale came from the northwest instead of the east and may have been obstructed somewhat by the hotel.

The failure of the triple register to record satisfactorily during the past storm appears to Gerdel to be an entire lack of ink on the pen, which in turn may be due to the lack of flashlight or bulb for re-setting the register and the haste caused by attempts to meet the mail train on time and return the mail sack to the postoffice.

More time must be taken to check accuracy and more light must be installed. A bulb can easily be connected to the desk lights and conducted across the room to the register. Pity that an accident prevented my visit to the anemometers during the storm and that failure of the triple register should occur at the same time. At least the familiarity of wind movement at hotel and the pasture indicates similar wind conditions at least from the east. Winds from the west may be neglected somewhat by the hotel.

* and for following 24 hours 13.4 and 15.3 mi. hourly, the wind being slightly higher in the pasture. What was its direction?

0.03
 0.42
 0.81
 0.70
 0.20
 0.28

2.14
 2.5
 10.201
 5.2
 2.5

Letter to "Doc" Church from Bob, 1-3-1944
 in folder



Tring Recorder

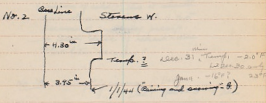
Nov 1 - Set at 1 in.

Dec 1 - Rec 3.48 = total 2.48 in (check thin)
 (4.2.4.8. 2.42 in)
 " 6 - " 3.55
 " 11 - " 3.55

Get copies of all sheets.

January 1, 1944 (till 1 pm. Still raining and snowing).

Observations by Kendall
Precipitation Log



No. 3 "U.S.E.D. Cup" Depth 15.9 in

No. 4 W 11.40 in " 9.9 in

No. 5 Returning from top of chart.

Photo No. 6 W 11.25 in Depth 9.9 in

No. 7 Station Q. Location of pen noted.

No. 8 W 9.25 in Depth 7.0 in

|||||

|||||

No. 9 Wt 10.55" Depel 8.8"

No. 10 " 10.83" " 9.0"

Summary - Records

Hotel -

Precip. Gage No. 1 Unshielded 2.78ⁱⁿ
 But additional .03ⁱⁿ instead of .1
 Ice camp. with sheet and fence.
 Dec. 31, 5 pm till Jan. 1, 1 pm. 2.47ⁱⁿ

Enc. Gage No. 2. Stevens H.

Dec. 1 .. 2.74

Jan 1 $\frac{4.30}{1.56} = 3.12$ in

But pen reversed to 3.95ⁱⁿ.
 because of cold (?) this it should
 have advanced beyond 4.30ⁱⁿ
 because of continuing precip.
 -> Study dates of retreat. Has
 there later recovery?

No. 3 - Army Engineers.

Dec 1 spot 15.3 = 72.6

Jan 1 $\frac{15.9}{0.6} = 75.0$ in

0.6 = 2.40

No. 4

Dec. 1 8.85

Jan 1 $\frac{11.40}{3.05} = 3.05$ in

No. 5. Fring

Dec. 1 3.45ⁱⁿ

Jan 1 6.88 = 2.93



Pasture -

No. 6 Dec. 1 8.36
 Jan. 1 11.25 = 2.89^{in.}
 2.89

No. 7. Shelter Q Dec. 1 7.72
 Jan. 1 - ?

No. 8 (unshielded) Dec. 1 6.82
 Jan. 1 9.25 = 2.43^{in.}
 2.43

No. 9 Dec. 1 7.40
 Jan. 1 10.55 = 3.15^{in.}
 3.15

No. 10 Dec. 1 7.23
 Jan. 1 10.33 = 3.10^{in.}
 3.10

Note - of the unshielded gages, No. 1 at Hotel caught 2.78^{in.} and No. 8 Pasture only 2.43^{in.} yet wind exposure only slightly greater in Pasture. Environ. 5.03
Nov. 09

The shielded lower gages Nos 9 and 10 caught maximum except possibly No. 2. There was little drift snow in the gale of Dec. 9 but a cloud of dust rose high enough to be above eye-line of fuel filling station to near crest of Beacon Hill.

→ Erect an unshielded weighing gage by side of No. 1 to compare stick and weight methods in daily readings.



Evaporation.

Judging from the high catch of the deep gages Nos. 9, and 10 the evaporation Dec. 9 was not large if any. Probably the 3 ft. gages and No. 5 should lose more and likewise even more the unshielded No. 8.

No. 1 was of course empty.

→ Study effect of gages both as relative catch and evaporation of contents.

Weather Record, December

Date	Max.	Min.	Pres.	Snowfall	Snow on Ground	Wind	Clouds
Dec. 1	41	18					SE Bkly
							No. 1 ... 945 " 2 ... 968
" 2	45	22					SE cl
							819 46
" 3	61	25					SE cl
							900 127
" 4	49	32					W cl
							480 191
Posture	Max. 57	Min 13	Barom 23	"	"		23

	Max.	Min.	Pres.	Snowfall	Evap.	Wind	Clouds
Dec. 5	39	24	.03	1	1	E Strong	
			during night				
			97				
			328				
" 6	24	22				T SE	Clear
			330				
			650				
" 7	41	24				E	cl
			523				
			890				
" 8	50	26				NW	cl
			97				
			658				
" 9	38	18				E	cl
			963				
			501				
" 10	37	20				E	cl
			294				
			869				
" 11	45	22				SE	cl
			421				
			11				
" 12	43	18					cl
			508				
			81				

Pasture Max. 41 Best 26
 Min 20 " 26

|||||

|||||

	Max.	Min.	Precip.	Snowfall	Snow St	Wind	Clouds
Dec. 13	46	11		590 154		E	cl
" 14	54	15		662 220		SW	cl
" 15	55	11		728 274		SE	cl
" 16	43	26		816 249		SE	pt cl
" 17	49	28		916 415		SE	pt cl
" 18	42	32		969 452		SE	cl
Posture	Max. 54	Min. 11	Precip. 39	38			
" 19	42	33	0.42 100% all day	28 510		SE	Rainy
" 20	37	32	0.81	43 547	24 3	SE	Snowing

	Max	Min	Barip.	Sunfall	Snow	Wind	Clde
Dec. 21	38	32			2	SE	cldy
			196				
			717				
" 22	44	20			7	SE	cl
			266				
			790				
" 23	48	20				SE	cl
			311				
			845				
" 24	41	23				NW	cldy
			364				
			901				
" 25	36	24	0.70	9	9	NW	cldy
			Sp. 24d				
			467				
			8				
	Max. 49	Bar. 32					
	Min. 20	31					
" 26	31	18			9	SE	cl
			640				
			228				
" 27	29	11			9	SE	cldy
			782				
			371				
" 28	36	14			8	SE	cldy
			858				
			416				
" 29	33	14	0.20		9	SE	Stony
			882				
			458				
" 30	32	23	0.28	6	15	NW	Stony
			930				
			516				

	Max.	Min.	Barip.	Barip. S. 1000	Wind	Chds
Dec. 31	38	-2		31	14	SE. Bldy
			981			
			552			

Posture Max. 38 Resat 31
 Min. -7 " 30

January 16 Hold up for Repairs

Conditions at Soda Springs given in letter by Bendel Jan. 1, 3, 13.

We must now alone at least during January except as we can confer by letter or at Post. Must remain here at least until Jan. 27 when glacier cost will be exchanged for a breaker. I had understood that I could be released even with the cost provided I did not sue.

- Antifreeze -

On Jan. 14 after numerous telephone calls, Prof. Boardman procured 1 gal. can of Crestone from Bendel's struggle against freezing of contents of gages.

→ The valvium at least protects the cans against boiling as happened in the case of water and oil in breaker lost in Sawdust Canyon, Nevada. Therefore a minimum value gained.

Thursday January 13

Temperature Measurements

Gendel has completed a reflecting galvanometer substitute for the potentiometer omitted from Leeds & Northrup, and will install it Jan. 17.

- Stevens H.

Linsley agrees that the extreme cold caused the reversal of Stevens H. that appeared last year to reverse mainly at night when temperature usually falls sharply. "If so," comments Gendel, "the 16° F below of January 4 should have also caused a further reversal." We are therefore looking forward to his report next week.

Water Pipes

owing to the shallow snow that failed to seal the draft beneath the Filling Station, the water pipes froze during the low temperature of early January ^(night of Jan. 4), forcing emergency

→ "From what I remember of the tracing, the reversal could possibly coincide with the 70 below of December 29, but I believe it occurred after that date."

showing by Gendel by means of roscovene
cloth shield. The blotter had been
taken away by Curly to their waterpipes
elsewhere. To prevent repetition of
the freezing Gendel banked the snow
^{two feet} above the foundation. Usually deep
snow comes early before the winter
winter temperatures occur, but this
winter the order of occurrence was
reversed.

Rain and Sleet

Considering the prevalent low
temperatures, the occurrence of
rain seems abnormal. Gendel
has noticed rain when the
temperature as high as the
window sill was at 26°F. The
road of course was a glare of ice.
We would like to have had
a tower 200-feet high with a
recording thermometer at each
foot of height.

→ Why not obtain the temperature

at Donner Pass Observatory?

→ Such rain would be frozen immediately by the snow.

Tues. - Wed., Jan. 18-19

Gerdal has come down to Reno for an exchange of experiences.

Comparison of Resistance Thermometers

The way now seems prepared for the tracing of temperature movement from air to soil! The following series are not only harmonious but reasonable:

The cold is being drawn from the soil apparently by snow insulation.
→ Are coils at 31.8°F absorbent of water due to salt in the soil? Gerdal.

at Donner Pass Observatory?

→ Such rain would be frozen immediately by the snow.

Tues. - Wed., Jan. 18-19

Gordal has come down to Reno for an exchange of experiences.

Comparison of Resistance Thermometers

The way now seems prepared for the tracing of temperature movement from air to soil! The following series are not only harmonious but reasonable:

Comparison of
Thermometers (Resistance Thermometers)

and
Thermocouples at same
depth in soil + snow, - °F

Jan 18, 1944, 11:15 Am.

	Thermistor	Thermocouple
1) <u>6" deep in soil</u>	32.2°	31.8°
2) <u>ground surface</u> <u>1" under snow</u>	31.8°	31.0°
3) <u>6" above ground</u> <u>17" under snow</u>	30.9°	30.7°
4) <u>1' above ground</u> <u>11" under snow</u>	28.2°	27.8°

52 #

→ as a coarse check on accuracy and a continuous trace of temperature change, two available thermographs could be buried in the snow for a week without attention. By the use of pit and tunnel, the instruments could be inserted in the snow beyond the influence of air except that penetrating the snow directly from above than the undisturbed strata.

The following dimensions of available recorders have been provided by Gendel:

Tycos = $10\frac{1}{2}$ L x $5\frac{1}{2}$ W x $7\frac{1}{2}$ h
Rushda 11 L x $4\frac{1}{2}$ W x 6 h
Fries (2) $12\frac{1}{2}$ L x $6\frac{1}{2}$ W x $9\frac{1}{2}$ h

all dimensions in inches

Dimensions of Thermo and
Hygrothermographs @
~~Portland~~ Soda Springs

should be provided.
Air ventilation, preferably in the
floor of the containers, where water
drainage could thereby, ^{also} be secured.
Wires for the recording of temperature
have been placed as high as 9 feet above
the ground.

Air Temperatures and Humidity

Doubt has been raised by Kendall
regarding the value of the series
of hygros-thermographs planned in
the District to determine the change in
temperature between the snow
surface and the thermometer
shelter on the treble. He feels
that the instrumental error would
exceed the changes in temperature
and humidity. The metal of the
recorders would also cause discord.

There is, however, an opportunity here
for comparison with the wires that
could probably be conducted from
the shelters to the part bases or
possibly be connected directly with
the potentiometer.

→ The effect of resist snow on the wire is likewise a problem. It should be compared with a thermometer in a tube.

As pointed out by Bendal, the surface of the snow is a complex of irregularities causing various exposures to sun and shadow. For this reason measurements should be made preferably in the shade. This can be accomplished by a canopy of muslin that will at least greatly modify the insolation.

From this as a basis, measurements can be made of slopes or facets subtended to the more direct rays of the sun.

Calorimeter

The Thomsen jig was brought down to determine the rate of temperature change of the contents during measurements, particularly to compare its rate of change with that of the vacuum jugs.

those for vacuum jars with 2-inch orifices have been obtained only in pint sizes - too small for the accuracy of measurement desired.

But Ashton Codd has written Gerdal the address of makers of the larger size and I understand has similar jars he is sending on loan. If so, one will be available for the Eastern trip.

See addresses also for Physics Department.

Comparison of Precipitation Gages

The comparative measurements of height and depth was made Jan. 17 was a desirable point after the snow of early January.

Gage Records

	1/14		1/14		Diff.	
	wt	stick	wt	stick	wt.	stick
USED 3		274.9 15.9		281.0 = 6.1 17.6		
4	11.40	4.9	16.10	14.8	4.70	1.5
6	11.35	9.9	15.70	13.9	4.65	4.0
8	9.35	7.0	13.32	10.9	3.97	3.9
9	10.55	8.8	15.27	13.6	4.72	4.8
10	10.33	4.0	15.13	13.3	4.80	4.3

* Scribed in snow.

2 Snow-covered

5 - 6.40, Jan 1
9.10 17 = 2.70 in.
1.25 = 14 = 0.28
2.98 in.

Copies of the record sheets from No. 5
Tring were brought from which pre-
liminary readings of precipitation were
made.

Tring No. 5 Dec 31 - 5.85
Jan 1 5.62
+ .23

Jan 7

At No. 31 - 6.15
Jan 1 6.38
Jan 7 10.40
Jan 14 But 1 in
" 14 1.25 in

No. 7 Stewens Q was removed but left
to accumulate a larger catch. I failed
to see for readings Dec. 1 and Jan. 1
from the sheet. Since the year is

gradually rising, the spirals of the
traces are doubtless distinct. The
location of the pen at the dates of
observation are carefully indicated.

Measuring Depth in Cases

The presence of ice and possibly
precipitated crystals in Nos 2 and 3
make measuring by depth difficult and
even caused the breaking of two red-rod
sticks. A metal rod coated with
to show water marks sharply, may solve
the problem. It should be graduated to tenths
of an inch and sharpened sufficiently
to penetrate thin ice.

But even so the oil makes a foggy
line and the surface even fails to make
any mark whatever. The comparative
measurements being made by Bertel
will determine the value of weighing
as contrasted to depth only.

Summary of Log Catch

Jan. 1 to 17.

Total -

No. 1. bushielded		night	3.81	3.81
No. 2. Stevens 14-				
Jan. 1. 4.30"				
Jan. 30. 4.00"	—	roll =		
Night has had been depressed				
falling of trap weight. (See below)				
See in record.				
No. 3	Jan. 1. 74.9"			
	Jan. 17. 81.0			
			6.10"	6.10"
* from capacity level. In case account?				
See in record.				
No. 4.			4.70	4.5
No. 5 - Fritz	Jan. 1-7. 4.02"		4.27	
	" 7-14. .25			
			4.27	

Balance

No. 6			4.45	4.0
No. 7	Jan. 1. "			
	" 17. "		4.26	
Revised. let sheet unchanged				
No. 8			3.07	3.9
snow badly piled up				
over air-jet. See the				
remains of them, shelter?				
or wooden support?				

No. 9 3ft. deep

height depth
4.72 in. 4.80 in.

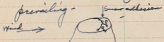
No. 10

4.80 in. 4.30 in.

Clogging of Orifices

All cans overloaded except Nos. 2 and 3 that have large containers, but did not load in No. 7.

→ Even No. 2 Stove # despite its heated ring had a crescent of snow in the orifice when chilled by the force of the wind, at the zero temperature prevailing.



Berdal suggests a control that could increase the degree of heat as temperature falls.

There is a thermostat for temp. above 32°F.

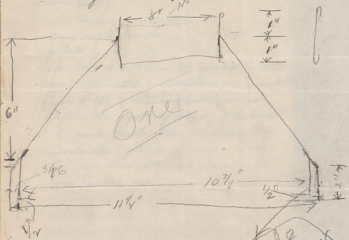
The snow also adhered to the round vertical walls of the 8-in. cans but not to the sloping wall of the conical Army type No. 3.

→ Therefore Berdal suggests placing an 8-in. reducer on the top of an 11 in. can available from Salt Lake City.

Estimated cost \$9.00
 Order given Saturday 11:30 AM

By Pace $\frac{1}{20}$
 $\frac{47}{47}$

(3 hrs)



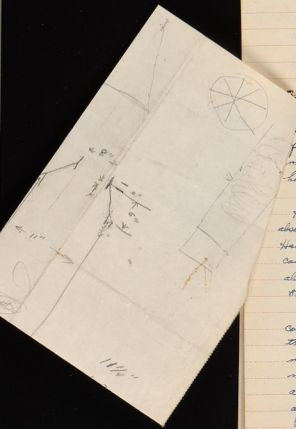
Inside
 collar
 collar
 collar
 collar



24" Lion

Friday $\frac{6.00}{9.50}$

21



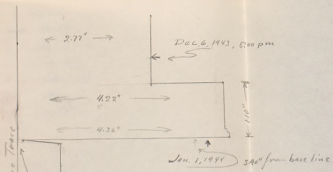
Can snow may thus fall to the bottom of the can without adhering to the walls. But are these adhesions rather loose feet?

Coming up of snow

How rapidly is the snow melted and absorbed by the calcium chloride? How heavy a fall can be digested by the cans? The catch in November 1942 was about half of the seasonal normal. What is the effect of freezing of the liquid?

On Jan 3 Seidel notes, "We have had considerable light, fluff snow and the gage cans all had about 5 or more inches of snow in them this morning with no solution visible altho it had not snowed much after 7 pm last night. The temperature got down to 16 last night but that should not have frozen the solution."

→ (Query: Is this -16°F? Solution froze very readily last year and melted again. Even long cylinders of ice were formed. If the gages had been near the end of the season contents, yesterday the



Trace of Stereas W
 Jan. 17, 1944
 2:40 pm

J.W.G.

To Jan. 17, 1944

... would have overtopped the cans.
Problem: Why should the contents of No. 8
be so deficient with the can buried
in snow? It does not seem to have
been blown out. Compare stick with No. 1.
Also compare deep cans Nos. 9 and 10
with Nos. 6, 2, and 3.

Stones

No recovery had been made by Stone #4
as hoped. Either it had recovered to
starting point .15" from base line,
then had gone forward 0.8" from base
line when the stops became dead.

Could the trip weight or a broken
cable upholding the can be at fault?
Erie Race went to Lake Springs Thursday
Jan 20. The single strand cable still
held but the trip weight had fallen.
This because the time had only 6"
contact instead of 40" to bring the
neighborhood balance, the traveling weight
closed the emergency cut-out and
stopped the mechanism.

But why did the weight bend forward
9.65" before tripping the limit lock?

The voltage was still high.

One of the styphes had made a hole in the record sheet and covered it 20 samples.
Defect in paper?

Paper was readjusted and instrument was
→ started again. What was the point of recovery
of balance? Is the total precipitation comparable
to that of the other instruments?

The trip weight was probably slower because
of long continued vibration of the paper ground
by passing trains. The ^{point} ~~then~~ should be filed
slower.

The instrument had run properly for 5 months.
Evidently it will run easily with minor
adjustments for a year.

Living Quarters Agreed

On Jan. 11 called Dennis Jones at Sedro-Blaine
by phone.

He immediately accepted our offer of \$40
monthly for the old post office quarters but
restricted us to the first floor except that
we might use the upstairs for sleeping
if not occupied by the Hotel.

Since the filling station had been relinquished
by the Army on Dec 7, it was agreed that
the rent should begin with that date.

No mention was made of fuel and
lights, but we assume that they are
included.

Rent should be paid also for space in the tire garage for fuel and 1000 lbs of iron for turners and equipment.

To give greater stability to the lance, the Experiment Station will pay the monthly bill with reimbursement from the expense accounts of Gerdel and myself unless I turn in claims only for my needs.

Jan. 26. B. R. W. S.

I went up to Soda Springs Monday and returned to Sacramento last night (Tuesday). An 8-inch gage can was brought down for which I am making a plastic collar.

The reducing collar for the 11-inch gage was received and installed on a five foot tower with windshield which I built from parts received from Salt Lake City. This was placed on the platform behind the hotel since there was not sufficient room on the platform in the pasture.

The Prestone gage is also on the platform behind the hotel.

The 11 inches of snow which fell Saturday and Sunday was for the most part just accumulated on top of the ice in all gages except the U.S.E.D. and the Prestone gages. The operation of the Prestone for that one storm makes me enthusiastic about it. Why the ice in the U.S.E.D. gage is less effective in preventing snow melt, I don't know, but it may be the greater area exposed to snow, or it may be that the concentration of CaCl_2 is more nearly optimum (30%) in that gage. At any rate it is our most effective and reliable gage so far. I have hope for the new 11-inch gage with 8-inch collar however. I charged it with 3.2" of CaCl_2 and 6.4" of water, weighed on the scales, and 8 oz. of oil.

The Stevens W has not been reopened since Ernie Mack was up. I am almost afraid to open it. The weight suspension is so "touchy" that I am afraid it will drop off when I open the door. The trace indicates that it dropped off when I opened the door on January 1. I did note that the paper appears very soft, as though moisture had been absorbed. But I detected no moisture in the case. Maybe a small open bottle of CaCl_2 crystals should be placed in the case.

Yesterday Dennis asked me to move our woodpile and all the iron towers that came from Salt Lake City so he could get more of his patrons cars in the garage. Unfortunately, in moving the heavy bundles of angle iron, alone, I sprained my back and now I am having difficulty in getting around. I returned to Sacramento so I could soak my back in a hot tub and try to get in shape as quickly as possible.

I expect to return to Soda Springs Friday with a complete plastic collar gage can. Grace, Charles and I will come up in our personal car, so if there is any heavy lifting to do I can call on them for help. Since we will have to return Sunday, I may make all the

C
O
P
Y

January 27, 1944

Mr. H. P. Boardman
735 West Street
Reno, Nevada

Dear Mr. Boardman:

The area of the opening of the seasonal U. S. Engineer gage is 49.50 square inches; whereas, the area of an 8-inch circle is 50.265 square inches. Therefore, one inch of precipitation through this opening would weigh 1.7875 pounds. The standard Weather Bureau scales are used to weigh the charge and the total catch including charge at the end of each season. The difference in these totals may be corrected by applying the factor, $\frac{50.265}{49.50} = 1.01545$, to get the catch in inches.

Very truly yours,

/s/ Joseph B. Paulson, Jr.

Yesterday Dennis asked me to move our woodpile and all the iron towers that came from Salt Lake City so he could get more of his patrons cars in the garage. Unfortunately, in moving the heavy bundles of angle iron, alone, I sprained my back and now I am having difficulty in getting around. I returned to Sacramento so I could soak my back in a hot tub and try to get in shape as quickly as possible.

I expect to return to Soda Springs Friday with a complete plastic collar gage can. Grace, Charles and I will come up in our personal car, so if there is any heavy lifting to do I can call on them for help. Since we will have to return Sunday, I may make all the measurements on Sunday morning, that would usually be on Tuesday, February 1. Many of the gage cans are getting very heavy now.

Please bring up, or send, a copy of the graph for the E.D. gage. I failed to get a copy of it when in

If you can come up Friday or Saturday, let us know, in Sacramento if possible, and we will bring along food for all of us. My home address is:

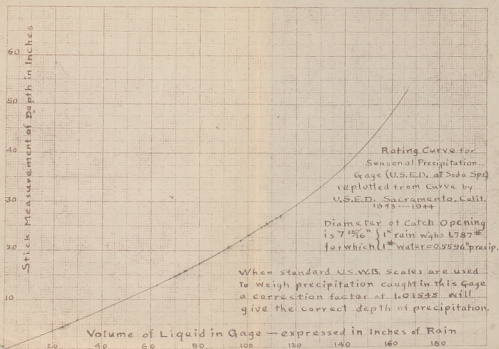
2433 42nd Street,
Sacramento 17, California."

my Engineers Gage - Graph -

Boardman has noticed that the formula on the Engineer Graph does not indicate on 3-inch orifice.

The following letter from Rankin states the factor of 1.01545 to obtain catch in inches by the standard rather Bureau scales.

Boardman has accordingly revised
the graph as follows:



a Double-8" Can

To increase the area of the surface and the relative amount of calcium chloride, a larger catch can has been contemplated.

If made double the capacity of the 8-inch can, the spring balance can be used by using employing a correction factor of 0.50.

The diameter of such a can is computed by Prof. Boardman as 11.3137".

Area of 8" diam Circle $\frac{50.2656}{54.4}$
for twice this area = 100.5312
 $r = 3.65685"$ $\frac{7.3137}{54.4}$
or Diameter of 11.3137"

a Comparative Weigh Can for No. 1

To test the ~~rel~~ comparative ~~accu~~ accuracy of measurements by weight



and night, a companion can
similar to No. 8 should be set by
the side of No. 1 and weighed
at the time the other is measured.

NO FORM 1008

U. S. DEPARTMENT OF COMMERCE, WEATHER BUREAU
COOPERATIVE OBSERVERS' METEOROLOGICAL RECORD.

STATION Soda Springs COUNTY Nevada STATE Calif. NR OF OBSERVATION
LATITUDE _____ LONGITUDE _____ ELEVATION 6767 TEMP 51.2
MONTH January MERIDIAN OF TIME _____ PRECIP _____

MONTHLY SUMMARY

(TO BE FILLED IN BY OBSERVER)

DATES OF -
HIGH WINDS, _____
GLAZE, (FREEZING RAIN) _____
SLEET, (SMALL ICE PELLETS) _____
HAIL, _____
KILLING FROST, _____
THUNDERSTORMS, _____
FOG, LIGHT (VISIBILITY LESS THAN 1 MI.) _____
DENSE (VISIBILITY LESS THAN 1/4 MI.) _____
DEPTH OF FROZEN GROUND AT END OF MO. _____ INCH

DATE	TEMPERATURE			TIME OF BEGINNING	TIME OF ENDING	PRECIPITATION		DIRECTION OF WIND	SPEED	MISCELLANEOUS PHENOMENA
	MAXI-MUM	MINI-MUM	WET MAX.			AMOUNT INCHES & FRACTIONS	SNOWFALL INCHES & FRACTIONS			
1	35	24	22	D N		.38	2	15	NW	
2	34	20	23			1.40	8	26	NW	
3	29	18	26		N.O.N	.24	3	29	NW	
4	25	10	27.5	D N		.02	2	29	NW	
5	32	22	29.6			1.15	16	35	NW	
6	29	19	27		4 AM	.41	5	40	E	
7	45	19	24.4					36	SW	
8	41	5	23.2					35	SW	
9	34	30	27.1					34	SW	
10	35	25	25.1	6 PM	D N	.12	3	37	SW	
11	36	20	27.20					34	SW	
12	34	-	25.5					35	E	
13	44	17	25.8					35	N	
14	43	27	27.2					34	NW	
15	43	7	27.2					32	E	
16	52	16	27.4					30	SE	
17	44	10	27.5					27	SE	
18	48	25	27.6					24	SE	
19	60	12	27.8					27	SE	
20	60	5	28.1					26	SE	
21	59	10	28.2					25	SE	
22	57	20	28.5					24	SE	
23	39	21	27.7	M.N.		.10	8	32	NW	
24	27	12	27.2		3 PM	.34	6	38	SE	
25	25	18	27.2					37	SE	
26	24	3	27.1	10 AM		.07	2	40	NW	
27	31	11	27.0		D N	.05	1/2	40	NW	
28	35	-3	27.3					38	NW	
29	39	19	27.1	5 PM	N			37	NW	
30	34	24	27.0			.77	8	44	NW	
31	27	22	26.8			.22	3	47	SW	
LAL										
SUM										

(NEED NOT BE FILLED IN BY OBSERVER)

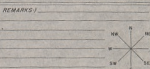
TEMPERATURE
MEAN MAXIMUM, _____
MEAN MINIMUM, _____
MEAN MONTHLY, _____ DEPARTURE, _____
MAXIMUM, _____ DATE, _____
MINIMUM, _____ DATE, _____

PRECIPITATION
TOTAL, _____ INVS. DEPARTURE, _____
GREATEST AMOUNT _____

IN ANY OBSERVATIONAL DAY		COMPUTED FOR 24-HOUR PERIOD	
AMOUNT	DATE	AMOUNT	DATE

SNOW
TOTAL SNOWFALL, _____ INCHES
GREATEST IN ANY OBSERVATIONAL DAY, _____
DATE _____

NUMBER OF DAYS
MAX. TEMP 90° OR ABOVE, _____
MAX. TEMP 32° OR BELOW, _____
MIN. TEMP 32° OR BELOW, _____
MIN. TEMP 0° OR BELOW, _____
WITH 0.01 INCH OR MORE PRECIP, _____
0.25 INCH OR MORE, _____, 1.00 INCH OR MORE, _____
CLEAR, _____ PARTLY CLOUDY, _____ CLOUDY, _____



NOTE: NUMBERS AT TOP OF COLUMNS, REFER TO NUMBERED INSTRUCTIONS ON COVER
1. ENTER TEMP AND PRECIP FOR 1ST DAY OF FOLLOWING MO WHERE OBS IN WORKING ONLY
2. READING OF MAX. THERMOMETER IMMEDIATELY AFTER SETTING
3. INCLUDING RAINFALL, SLEET AND MELTED SNOW ON DAY OF MEASUREMENT
(IN TRIPlicate)

Arthur Condit
COOPERATIVE OBSERVER
Soda Springs
CALIFORNIA

STATION _____
MONTH _____, 19 _____

Weather Record for January

Date	Max	Min	Precip	Excess	Bar	Wind	Sky
Jan 1	35	24	0.38 Rainy night	2	15	NW	Swing
				No. 1 60			
				No. 2 —			
2	34	20	1.40	8	26	NW	cldy
				No. 1 176			
				No. 2 —			
3	29	18	0.28	3	29	NW	BT cldy
				# 1 230			
				# 2 —			
4	25	-10	0.02	2	29	NW	cldy
				# 1 280			
				# 2 805			
5	32	22	1.15	16	35	NW	Swing
				# 1 370			
				# 2 902			
6	29	19	0.46	5	40	E	clb
				# 1 492			
				# 2 101			
7	45	19			36	SW	clb
				# 1 647			
				# 2 254			

[200]

La Pastora
Max 37° F Rain 37
Min -16 " 36

8	41	5				35	SH	cl
			#1	715				
			#2	310				
9	39	30				34	SH	Partly
			#1	756				
			#2	358				
10	35	25	0.12	3	37	SH	cl	
			6pm to 1am					
			#1	805				
			#2	402				
11	36	20				36	SH	cl
			#1	875				
			#2	479				
12	54	Lowland				35	E	cl
			#1	950				
			#2	566				
13	44	17				35	N	cl
			#1	40				
			#2	689				

W T O O O

O O O O O

14	43	27		34	NW Pt ch
{	Positive Max 51 Min -1	Point 38 37	#1	116	
			#2	690	
15	43	7		32	E Pt ch
			#1	194	
			#2	762	
16	53	16		30	SE Pt ch
			#1	282	
			#2	838	
17	44	10		29	SE ch
			#1	370	
			#2	921	
18	48	25		28	SE ch
			#1	533	
			#2	98	
19	60	12		27	SE ch
			#1	633	
			#2	210	
20	60	5		26	SE ch
			#1	721	
			#2	302	
21	59	10		25	SE ch
{	Positive Max 59 Min 1	Point 58 54	#1	800	
			#2	353	

22 57 20

#1 863
#2 412

24 SE ch

23 39 21

1.10 8
#1 12
#2 560

32 NW stormy

24 27 22

0.34 6
#1 90
#2 639

38 SE Pt. ddy

25 25 15

#1 357
#2 946

37 SE ch

26 24 3

0.07 2
#1 410
#2 14

40 NW stormy

27 31 11

0.05 1/2 in
#1 464
#2 75

40 NW ch

28 35 -3

#1 510
#2 110

38 NW Pt. ddy

Postcard
Max 54 April 22
Min -5 " 31

C
O
P
Y
FEDERAL AND STATE
COOPERATIVE SNOW SURVEYS
State _____
Drainage Basin South Yuba River
Snow Course Summit
Party B. Eddy and A. Chase
Date February 1, 1944

*Description or Number of Course	Station Number	Depth of Snow (inches)	Length of Course (inches)	Weight of Snow (pounds)	Weight of water and core	Grass Content (inches)	Density per Core	Remarks
Key	1	43	42			11		Dirt
	2	47	46			12		"
	3	46	45			12		"
Course	4	52	51			15		"
	5	50	49			14		"
	6	47	46			12		Ice
	7	51	50			15		Ice
	8	54	52			15		Ice
	9	55	52			16		Pin-Needles
	10	52	51			15		DIRT
	11	49	47			14		Grass
	12	55	51			16		Grass
	13	52	50			14		Grass
	14	49	48			14		Ice
		702			195			

Averages 50.1 13.9 27.8% Dens.

13.9 + 47.8 = 29.1% of April 1 Norm.

*Show number or description as given on sketch map, i.e., "Course No. 1," or "Major Course," or "N 1" E," etc.
†Always start measurements for sampling from the initial point as shown by the sketch map of the course and follow the spacing for samples as indicated. Particular care should be taken to note any irregular spacing between samples.

No. _____ of _____ sheets. Comp. by _____ Checked by _____

29 39 19 5 ft T 37 NW St cddy
#1 542
#2 149

30 34 24 0.77 8 44 NW St cddy
#1 581
#2 186

31 37 28 0.54 5 44 SE cddy
#1 621
#2 253

Snow Survey Feb. 1

Snow depth 48.7 Water Equiv. 12.2 Dens. 25.1%

By Blair Eddy.

Station ?

C
O
P
Y
FEDERAL AND STATE
COOPERATIVE SNOW SURVEYS
State _____
Drainage Basin South Yuba River
Snow Course Soda Springs
Party B. Eddy and A. Chase
Date February 1, 1944

*Description or Number of Course	Station Number	Depth of Snow (inches)	Length of Course (inches)	Weight of Snow (pounds)	Weight of water and core	Grass Content (inches)	Density per Core	Remarks
Key	1	51	50			14		Dirt
	2	48	46			11		Ice
Course	3	46	44			11		Gravel
	4	49	48			12		"
	5	47	46			11		Grass
	6	48	47			12		Grass
	7	53	52			14		Grass
	8	47	46			12		Grass/Roots
	9	51	50			13		Grass
	10	47	45			12		Grass
		487			122			

Averages 48.7 12.2 25.0% Density

12.2 + (42) = 29.0% of Apr. 1 Normal

*Show number or description as given on sketch map, i.e., "Course No. 1," or "Major Course," or "N 1" E," etc.
†Always start measurements for sampling from the initial point as shown by the sketch map of the course and follow the spacing for samples as indicated. Particular care should be taken to note any irregular spacing between samples.

No. _____ of _____ sheets. Comp. by _____ Checked by _____

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Feb. 2, 1944

Soda Springs Cal.

Dear Doc:-

That a heavy mail tonite. Three letters from you besides the forwarded one of Merriam's. There is so much to answer in your letters that I'll have to write half the night. I'm starting now but will be interrupted shortly I know as an Army Officer in the Aerological Section of the Air Forces has asked if he could spend the evening here "chewing the rag" about weather.

First, the delay in receiving your letters can be attributed to many things. Primarily, Arthur told me he just "forgot" to give them to me tho I asked yesterday afternoon if there was any mail for me as I expected a package from Sacramento. Mainly tho, I've been "jumping" as usual on the job. I went down to Sacramento Tuesday night, built a gage with a plastic collar, painted it a dead, flat black (the metal part, the plastic is transparent and quite thick). This plastic collar extends 3 inches above the gage top and two inches inside. I returned by personal auto Friday, installed this gage & ome. I had installed the reducing collar gage and the prestone gage before going down to Sacramento. By Saturday the storm arrived, (3:00 p.m.) and it has kept it up ever since. I drove down thru a real blizzard late Sunday night, and returned Tuesday afternoon. There has been no let-up in the snow fall for a long enough period to weigh and assure the gages. I make a trip around to them and make notes every few hours but I doubt that the weighing should be done until this storm is over (unless some of the gages get too full). Only one gage looks to be overly full. *Do not change it unless I think it needs to be done.*

Snow on collars
There was no accumulation of snow on the collars of the gages or on the ~~the~~ anti freeze Sunday or yesterday, temperatures were much too high, very little below 32 has occurred for five days or more here. Today the snow started to stick to the gage collars and every gage is "falling". None are capped, but in all cases from 25 to 75 percent of the orifice is blocked with a donut of snow. "Big Bertha" is the worst of the lot tonite. I wish you could see the plastic one. The low specific heat of the plastic collar results in it being the same as the snow temperature, hence the snow is stuck to the outside as well as the inside of the plastic collar until the donut is twice the diameter of the can and the opening is only about two inches in diameter instead of 7 and 7/8 inches as I made it (that was the best I could do) Even with the steep slope of both the new reducing collar gage and the USED gage, snow is piling up on the shoulders of the gages, The USED makes a swing now and then but the snow don't break off. I've been watching the telephone wires today, they sway and vibrate continuously, but the snow don't bounce off of even such fine edges as they present to the snow mass, so how in heck can we bounce it off of the gages which present such enormous areas for cohesive forces to act upon.

*See Weather by Station
Jan. 29 - Feb 4
P. M. Beall, 1944.*

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*see most of the pages are regularly
being in case of longer list than so*

RECEIVED
FEB 11 1944

(No. 2 Stevens W)

The heat on the collar of Big Bertha is not sufficient for the task and in fact it is the second time that I've noted the heated collar to be doing the reverse of what it is intended to do. The snow donut on "w" is icy, showing it is melting and refreezing whereas on the others the snow donut has the same appearance as the new fallen snow on the railings of the platforms. It appears that the amount of heat being produced in the Stevens W is just enough to speed up evaporation and therefore a lowering of the temperature of the accumulated snow surface.

I did not receive a copy of the program for the meetings at Berkley, along with your "Copy" letter received here at Soda Springs so I presume it went to Sacramento. I don't know how I will find time to prepare a paper for the meetings, but I really have some nice, preliminary "dope" on snow temperature measuring procedures. Guess I'll just have to stop studying snow and write a bit about it.

As for lantern slides, I do have just three pictures, all of the sentry box, but none showing the complete installation. I have always done my own photo work and just have not had time to unpack and set up my dark-room equipment. Please have ahead on this matter, it is my only real hobby and I'm beginning to feel pretty disappointed that I can't find the time to make pictures of these Scenic Sierras, to say nothing of making some of the new installations. I'll take a look at the three negatives when I return to Sacramento for I've forgotten just what they do show of the "set-up" and if they are worth making slides of, I'll send them to Reno. It just seems to me that both you and Bernard sort of forget at times the limits to which one single individual can go in this snow study. Particularly in view of the very short time I've had to do things in.

My back is in pretty good shape again. It did not get hurt at the old injury but much lower down and several soakings in the bathtub eased it a lot. The weighing of the gages is well within my physical ability and you need not worry about that. The ironware in some cases ran to over 250 pounds per bundle and the bundles were 20 feet long which made a dumbay mess to lift and that is how I sprained the back, for it was nothing more than a sprain. I will treat my back with a little respect for a few more days and it will be O.K.

The Ski shop operators have moved out of the second floor and have rented one of the cottages across the road so they could do at least a part of their own cooking. Dennis plans to use the two rooms up there as overflow for the week-end ski crowds. I doubt if we can persuade him to rent us these rooms for \$10.00 per month extra but you can try and I'll pitch in the extra \$5.00 if he agrees. Last week end, an army air transport pilot friend of mine came up and I invited him to eat with Grace and I and to sleep in one room upstairs. Dennis had planned to put some boys up there but when he found out who I had invited to stay with us he "fell over backward" to be decent about it, refused to send the other boys over and refused to take any pay for the use of the room. (The pilot flew all the way from Australia on a ten day leave to go skiing) Fortunately Dennis knew him too.

See Milder at Stevens
 Jan. 29 - Feb 4
 P. M. Donald, Feb 2.

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a note of the type are necessary
 explaining the date of flight for them as

Arranging Equipment

Today I moved the triple register into the corner between the clothes closet door and the kitchen door so none of the week end skiers would bump into it on their way upstairs should they happen to have had a drink to many at the bar (most of them are that way by 10 p.m.) and also happen to be assigned to sleeping quarters in our building. It was quite a job of wire tracing in the hole under the building. I constructed a new table to fit the corner and have your telethermo-scope on it and one of my thermohms wired out to the peak of the roof on the north side of the building so we can follow air temperatures after dark or at any time it suits us. I've been using that telethermo-scope anyway for some experimental and calibration work in the building at night, mainly as a comparative method against the Bouyoucos resistance thermometer which to date, I am very much disappointed in. It just "aint what it ought to be", and I don't think it ever was either.

Weigh by Stannic Ferrous

I will stay here and stick-out this storm period in hopes of getting a precip record for it. I hope you are not disappointed that I did not make weighings yesterday, but it seemed to me to be such a big waste of time since the purely arbitrary precip period of Jan. 1 to Feb. 1 means nothing in this snow research from the standpoint of instrumental problems, but a precip period means every-thing under the circumstances. It was also a rather physically diffi-cult proposition with the enormous mass of snow on all the platforms and the very heavy falling snow, to try and make the month end record. (Incidentally, Fletcher gave me a lot of gage stick with which to replace previous or future broken ones).

Reducing CaCl₂ in Anti-Freeze

Referring to the easier melting of snow in the USSD gage. This is hardly due to the exposure of the can, and is undubtly due to the larger quantity of anti freeze at the eutectic point or nearly so. The dilution below 30 percent in that can is at a much lesser rate than that in our puny 8 inch cylinders. Did you know that CaCl₂ at 30 percent has a freezing point of -59.8, while at 35% concentration it is 21 above zero and at 20 percent it is about 2 above zero. It is so easy to get a bit too much calcium Chloride in the cans when recharging and thus greatly raise the freezing point, then a period of moderately heavy precipitation will greatly reduce the concentration and again the freezing point will be raised. Thus, the largest possible volume of exactly 30 percent CaCl₂ which can be initially charged into a gage is the most logical thing. This can be done with either the USSD or the new Reducing collar gage (I have 1 labeled it in my notes "Gage R" and the prestone gage "Gage P" and the plastic collar gage, "Gage PC").

Eddy was in and gave me the data on the snow-course survey.

Lindsley has talked about driving to Berkley. I've had no time to discuss the matter further with him. He has even written Washington for me for permission for my attendance (at my own expense but on government time). Lindsley and Fletcher sure have done a lot and put up with a lot from me in my efforts to spend as much time as possible up here.

Waiting out the Storm

I only hope this storm will blow over before Saturday

a most of the time we are engaged in weighing our snow samples at 10 p.m.

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See Miller's of Stevens
 Jan. 29 - 1944
 P. M. Kendall. 1942.

so I can complete the precip record before going back to Sacramento. I have an appointment with the dentist for Monday and the job is getting imperative. Several new fillings, put in just before I came West have worked loose and pressure in just the right spot appears to hit a nerve.

I plan to spend several days up here next week but until I've been to the dentist I cant say what day I'll come up. I cant wire you when I find out. I see no need for your coming up this week. Getting around in this very deep snow is not too easy and would not be the best for your back. Between our lodgings and the platforms, the skiers have so cut up the snow that it cant be walked on with snowshoes or plowed thru without them very well without a lot of effort. A woman trying to do just that, fell down and broke her arm right at our door-step Sunday. The snow is poor and broke her arm right at our door-step Sunday. The snow is poor for skiing too, and one leg fracture happened Saturday.

How about this "report" for the Snow conference. Can I write it up in the rough, and after the conference smooth it out for publication? I dont see time enough ahead of me to do a decent job for publication, before Feb 15.

Vacuum Bottle
Glancing thru Merriam's letter I note his criticism of the thermo-type jar you used, and I want to second it. If you plan to do anything on "Kaltegehalt" please use a thermos bottle. They can be bought. The American Thermos Bottle Co. Merwick, Connecticut will supply the one-quart wide mouth style on a rather low priority and quick delivery. I've sent in a requisition to Washington for four of them. Why dont you get the University or Expt. Station to get two for you. The pint size are too prone to error, because of the small sample, but even so I'd sooner use those than any heavy-glass, single wall type of calorimeter.

Dont count on any help from Harry. Arthur has started a ski shop, and the Ice-Lakes keeper operates it and I think Harry is kept very busy too with the ski-shop and the waiting on customers. Arthur cant even handle the crowds he has on Sunday. He served over 300 dinners and it took people all day to get a single meal. Dennis refused to serve any but registered guests and it is my opinion that there were not less than 750 on the skitow last Sunday. Even with the bad weather, the midweek gang at Arthurs, ~~Beacon Hill~~ Beacon Hill and Soda Springs Hotels is almost unbelievable in these days of man-power shortage, gas rationing and travel difficulties. Too me it smacks a bit of "cheating" on the defense program.

Water proof Note Book
I must get to work on my notes. They are on scratch paper and in terrible shape due to getting wet. I dont try to take a note book with me but just a wad of scratch paper when I go to visit the gages.

Hope this long winded letter answers most of your questions. I did send you the precip for Jan 1-17 and told Arthur I had, so he did not send anything to you till today when he sent the whole months "dope"

Regards, *BW*

*See Miller's of Sacramento
Jan. 29 - 1944.
P. W. Kendall, 1942.*

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*a note by the paper are necessary
referring to date of receipt of paper*

In Midst of Storm
 Jan. 29 - Feb 4.
 R. H. Bendel, Feb 2.

~~T
 .77
 .54
 .54
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 1.30
 1.06
 1.71~~

- Weather Band -

37 29 0.35 3 47 NE stormy
 #1 687
 #2 317 ³³⁷

35 30 1.15 7 53 NW stormy
 #1 728
 #2 386

3 34 28 1.30 9 62 NW stormy
 #1 787
 #2 465

4 47 1 0.06 PH T 61 N clear
 #1 810
 #2 510

Pasture Max 43 Rent 41
 Min -1 " 40

Cages Reweighed

Feb 4. " The storm ^(4.31 in) ended at 9:45 pm last night.
 I took 18 pictures this morning. I am
 going out now and recharge two cages
 on the platform in the pasture and
 one behind the hotel. All others will
 last till you get up here. Snow caps
 on most of the cages are rapidly
 dropping in due to bright hot sun.

<u>Gage:</u>	<u>By stick:</u>	<u>By weight:</u>
4	21.0	22.13
6	20.5	21.42
8	16.1	17.34
9	20.9	21.87
10	(ice)	21.73
USED	20.6	---
Frestone	10.2	10.55
Plastic	7.6	8.77
Reducing Collar	5.9	19.70

Stevens W 0.75 inch from base line, reversed.
 Stevens Q 10.55 divisions from lower base line.

Frestone gage installed 1/20/44
 Zero equivalent after adding antifreeze
 stick, 4.75 inch; scales, 4.80 inch.

Reducing collar gage installed 1/25/44
 Zero equivalent after adding antifreeze
 stick, 4.4 inch; scales, 17.15 inch.
 (Stick reading ~~is~~ 0.525 gives precipitation in inches)

Plastic collar gage installed 1/29/44
 Zero equivalent after adding antifreeze
 stick, 5.0 inch; scales, 4.1 inch.

Recharge of gages 2/4/44 [recharged with 4" water, 2" CaCl_2 and
 10 oz. oil]

New zero equivalent

	<u>By stick:</u>	<u>By weight:</u>
No. 4	5.1	6.48
No. 6	5.5	6.44
No. 8	5.5	6.70

From Eriex Chart, precipitation for 1/26/44 to 2/4/44, 4#20 inches.

Mar 10.9 16.1
 5.2

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Sacramento, California

February 5, 1944

Dr. J. E. Church
University of Nevada
Reno, Nevada

Dear Doc:

All gages were weighed yesterday and a copy of the weights are enclosed. Numbers 4, 9 and 10 had to be weighed piecemeal as they exceeded the capacity of the scales. Numbers 4, 6 and 8 were recharged and the new zero weight is included on the enclosed record of precipitation. Numbers 9 and 10 were not recharged as they still have a lot of capacity, but the antifreeze is getting very weak and they probably should be recharged.

I just got worn out yesterday with seven trips on snow shoes to the pasture and five to the hotel platform, loaded down with batteries, camera and equipment, antifreeze, etc., so did not recharge 9 and 10 or Stevens Q which still has an inch and a half or more of capacity.

I took a lot of pictures, will develop the film tonight, select the best negatives, and send them to Reno. Maybe in addition to slides you can get some 5 x 7 enlargements from them.

Stevens W
Stevens W has reversed again but the beam weight did not fall. It capped over completely during this storm period before any other gage and the cap had not melted by 4 p.m. yesterday although all other gages were self cleared before 12:30 p.m. I took pictures of W as well as other gages at sunrise yesterday. Hope they are good.

We will go into more details about the letter from Barnes and your reply when you come to Soda Springs. However, I am emphatically against putting another gage on the Fries tower. We must not interfere with the Hydroclimatic data. The idea is scientifically unsound anyway so let us forget it for this winter.

Assuming the dentist will finish the work on my teeth by Monday night I will return to Soda Springs Tuesday on the 2 p.m. bus. Unless you hear from me to the contrary you can plan to come up at the same time. Bring anything in the way of food you think you can carry or will need. I have a fair supply up there now. Bread and eggs are the difficult items, one is so bulky, the other so perishable in transportation.

Expecting to see you next week, I am,

Sincerely yours,

R. W. Gerdal
R. W. Gerdal



BWG/nh

Mag- 10.9 15.1
5-2

Na₂S 10.9 16.1

5.2

|||||

|||||

I can weigh them all very soon.
Will put in 2 in. CaCl₂ and 4 in H₂O in
each gage. If not enough we can
add more next week's bundle.

Feb. 5-

" all papers were weighed yesterday...

Feb. 9 - First trip to Soda Springs since accident

Stems V

To check presence of cover on orifice
two peltimeter from Eric Mack.

Paid him \$2.50 for trip to Soda Springs
Jan 20 to reset Stems V.

Battery of heating unit found dead.
Better be left unconnected to test loss of
heat on catch. Next set of batteries
should be placed in an accessible
cabinet above the snow.

Trip 46

Snow half yard high at Jansen Lare.
Lare open!

Cloud cap over summit. Barometer
rising.

Graded leaving for me. All food
welcome. Must get more.

One Harry for 15 hrs work when I
was hurt. Total \$11.25

Plastic Fails

Snow when moist found to adhere
to the plastic collar when it failed
to adhere at all to the metal can

below. The plastic being transparent has low specific heat. He should test the opaque plastic collars being made by Jimmie Church.

The plastic snow sampler is too brittle under loading and the threads would almost where to joint separation.

Cardel expresses the relationship of steel, aluminum, and plastics as follows:

Steel, high specific heat	+ high conductivity	" 5 value;
Aluminum, low "	" "	" 2 1/2;
Plastics, low "	+ low conductivity	" "

Steel } High sp. ht (5)
 } High conductivity

Alum } Low sp. ht 2 1/2
+ }
alloys } high conductivity

Plastics } Low sp. ht 1
 } low conductivity

In values of combined specific heat and conductivity, steel remains 5 as compared with duralumin 2 1/2 and plastisc 1.

urged him to present table at General Meeting but he thought the facts were kindergarten! Perhaps, but too far more than
Change of Plastic Gage.

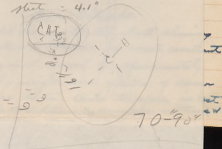
Charge Plastic Gage
 with PC (Plastic Gage)

1.6" CaCl₂ 34"

3.2" H₂O

Scale = 5"

Heat = 4.1"



CaCl₂ →
 CaCl₂ · 6H₂O
 Ca(OH)₂ · HCl

In values of combined specific heat
and conductivity steel remains 5

2%

Calcium Chloride

Goodell has a detailed chart showing
that calcium chloride is most resistant
to freezing at density of approximately
30% by weight. Less effective if denser
or more dilute. Best therefore is best
control of dilution. So Army Corps and others
most effective against freezing.

New Snow Cover Estimate

Fred Paget has been calling Gerald at Truro and me at Soda Springs. Finally I paid the hotel a courtesy call and found two calls on phone waiting. Wants latest snow cover for Feb. Report.

Received a message at 8:30 in the morning when the record could be obtained from Camilland.

largest reservation of records at Berkeley.
Paget's phone number: Sacramento 24711

Local station 384
Forest and Gardiner Sta.

February 10 -

Following estimate of snow sent to Paget

Depth 60 in Water equiv. 16.08 $\frac{1}{2}$ of Apr. 1 40.2

- February -		
Day	Depth	Deficit
Feb 1.	0.35 in	47
2	1.15	53
3	1.30	62
4	0.06	61
5	—	60
6	—	58
7	—	57
8	1.24 ^{15 in} _{water}	60
9	0.13	60
<hr/>		
4.23		

But 0.35 included in snow survey Feb 1.
So additional snow is 3.98
or 10% of 40 in approx.
 $13.2 + 3.98 = 16.08$

Depth by store Water $\frac{1}{2}$ of
60 in. 16.08 Apr. 1 day
40.2
Dens. =
26.8% Over Feb. 25.0
How about snow at Berkeley?

Completion of Recharging

Calcium weighed. approx. dens. 30%
Originally 1 carton calcium + 1 carton
water. 1 carton top of oil.

oil No. 20 ^(medium) found effective in
preventing evaporation for weeks
in summer. To afford clearance
or sharper water marks when
determining depth, why not try
oil No 10 (light) or even mineral oil?

Pasture - morning.

Large No. 9 Too heavy for one weighing.

$$20.17 + (2.1 + 1.4 \text{ (next)}) 3.5 =$$

$$23.67 \text{ lb}$$

Recharge 6.83 lb. Stick 5.0 lb.

* Ice core just slips out. Liquid
in bottom where iron heats up
and around sides, but iron thin.
Concentric rings of ice from
repeated freezing.
Open center because calcium
squeezed from frozen liquid into center

live alcohol in freezing sides.
→ Paint cans with thick black
paint to heat contents more.
Since oil prevents evaporation,
no need to keep cans white.
Copper cans dark in any case.
The oil seems to be midway
between bottom and top of ice.
"Emulsified" - Gerdel.

→ Get transparent plastic cylinder
to observe mechanics of freezing.

No. 10. Too heavy.

$$20.23 + 1.77 + 1.25 (\text{percent}) = 23.32$$

Too much ice for depth measurement.
→ Oil too thick. Try No. 10 or mineral
oil (paraffin base).

Recharge 6.92" depth (stick) 4.95"

No. 6 wt 7.78" depth 6.9"

No. 8 wt 7.72" depth 6.6"

After 4 p.m.

Mr. Watson

4502

No. 7. Stevens Q.

Liquid level only $\frac{1}{2}$ in. below
overflow outlet.

Ice only in upper half of bucket
and very loose.

No adhesions of snow. All melted.
Removed 11:45 a.m.

Record three times round.
or three months. Total capacity
of bucket and record sheet.

Ice still sufficient.

→ Clock had stopped twice. When
was it re-wound? Needs cleaning.
Second year in dust of summer.

Recharged 5.84 in. but 0.04 in. is
uncertain because of wind.

→ Must fasten weather strips on.

Erosion below Pent House

Snow drifting or eroding badly
beneath "sny feeder" and heater. Can
we have a windbreak to prevent
this? Snow 2 feet lower than

Reduce gaps
with
low shield

few days ago - Gendel.

Make test of branches. Gendel suggests the usual slot faces used by the highway for windbreaks.

Hotel. 2:25 pm.

No. 3 Wt 19.5" dpt 7.0"

No. 4 Wt 8.07" dpt 7.0"

No. 5. Removed regularly each Friday by Cavilland! "Frequently enough" - Gendel.

P (Bretona)

Wt 11.76 dpt 11.6

Get "Cobalt", photographic anti-chemical.

→ Now using black inside. Should be black outside too. Then heat from sun shining into and onto it.

PC (Plastic Cellar)

Wt 10.14" dpt 9.1"

Change oil for measuring stick by running it thru the snow.

Sticks
Purchased
for
74.10

Formula: ~~divide~~ by 0.525 to get true precip. as in an 8. in. can.

Receiving sticks new edged with metal to strengthen them. Two fastened on larger beam stick for handier measurement.

a supply of sticks for Sacramento
* offset leverage. Mine cost \$1.2 each.

approximately 3000.

No. 2. Stoves II.

opened Stoves II. by cutting away remnants of gills and removing covers.

The passing of accumulated snow as the flat had forced the chipping of the snow away and the abandonment of the covering.

→ Did the chipping jar? rather than vibration of train cause the trip weight to fall?

No covering canvas and quilt since Jan. 1 or earlier. Blown off by wind and matted down by snow and freezing by feet of observer.

What is value of quilt? In heat or in cold? If latter, cold could penetrate from behind. Try out the metals for unequal rates of expansion or contraction.

Removed sheet. Installed cross-section sheet with siphon in pen consisting of horizontal glass barrel.

trip weight in place let siphon at pen left of the sheet. The quilt seems essential. At least pen erratic since it was blown off. Query: where was the pen started?

- Plans -

Must return to Reno to meet Barry tomorrow night.

Gendel needs time for temperature measurements but a day off for relaxation as well. He will return to Sacramento on Tuesday.

Since I must prepare tables for
the Beverly Meeting and should go
down Wednesday evening for Agriculture
Soc. session Feb. 17, Gendel suggested
that I need not return until after
the meetings.

The extra period available was
found short.

UNITED STATES DEPARTMENT OF
WEATHER BUREAU
Sacramento, Cal

12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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Dr. J. E. Church
Fractures Spine

Dr. J. E. Church

Dr. J. E. Church
University of Nevada
Reno, Nevada

Dear Dr. Church:

The reflecting galvanometer substitute for the potentiometer has been completed and appears to be very satisfactory. I will take it to Soda Springs Monday and install it and will then come over to Reno for a day, probably Tuesday night.

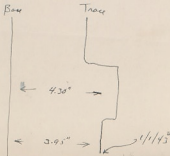
Ray Linsley agrees with you that the extreme cold caused the reversal of the Stevens W. If so, the 16° below of January 4 should have also caused a further reversal. I will check on that when I return. From what I remember of the tracing, the reversal could possibly coincide with the 7° below of December 30, but I believe it occurred earlier than that.

Sincerely yours,

R. W. Gerdel
R. W. Gerdel

RWG/sh

Stevens W. 1/1/43



to work on last of battery installation in pack.

Hope you are improving rapidly.

P.S. Since I have no carbon paper I enclosed an extra copy of this letter. Some day I will get a copy for my files some day.

Regards,

Bob Gerdel

16 below in the pasture last night. Still 8 below there at 8:30 when I went over to read the Thermomha. But the soil surface remains at 31.5 degrees F. The subsoil is warming up also but the snow getting colder. This was 9 degrees colder than the Folicola thermometer registered on the Filling Station which read 7 below zero.

Despite the fact that I had the heater turned up to the next to the last notch last night, all water pipes in the "cellar" froze. It took me most of the day to thaw them out with a kerosene rag on a stick and the fear of a fire in my heart all the time.

I banked snow up over & 1 the foundation walls to at least two-boards high above the concrete. Now if it freezes again my work will have been wasted.

This is the darndest weather country. Here it is only 22 outside tonite, I have thermometers scattered all over outside the building and the highest one on a window sill is 26, and YET it is raining hard. How can it rain with such low temperatures. Admittedly the rain freezes to anything it falls on. My trip down and back from Arthurs for evening dinner resulted, both ways, in a solid coat of armor from head to foot. I'm sure give a lot to have a temperature gradient on a night like this, from the ground up to 200 or more feet at one foot intervals. Certainly the temperature above 100 feet at the most must not be lower than 32 or it would not be raining. It would be snowing instead.

I have cooked two meals each day for myself and have not starved at all. However I do go down to Arthurs each evening not only for the big meal of the day but to just visit with the folks down there. It would soon get monotonous to live alone here all the time unless I could get down to Arthurs, or later maybe over to the Soda Springs Hotel, just to sit in the presence of other people, even if I cant hear their talk.

If and when you come up, bring such food items as you think you would like to have. I'm getting good again and flap-jacks, and can boil water without burning it. My coffee and tea are passable therefor. Backman eggs come easy. Oleo, or butter if you have the points, bread, eggs, and condensed milk are the essential items to bring.

I will go down tomorrow, so let me know when and if you can come up and I'll try very hard to meet you here.

Regards,

Bob

to see about battery installation in pass.

Hope you are enjoying rapidly.

Regards,

Bob General

P.S. Since I have no carbon paper, I will send no copy of this letter. I will send copy for my files some day (Bob).

Stevens Mt. 1/1/43

Bar

Trace

Dr. J. E. Church

Dr. J. E. Church

...the

Dr. J. E. Church
 Franchises Sino
 Dr. J. E. Church

Stevens W. 11/1/52

Base
|
Trace
|

UNITED

Fall from Truck
 Injures Scientist

Dear Doc.,
 Happy New Year!
 this morning trying
 sleep 'till 8:30, cooked me a stack-of-wheats, Grapefruit, wheat
 coffee, and went out and weighed all cages, etc. according to
 the instructions in your letter of Dec. 29.

Here is the dope for your note-books.

USED Gage No.	Weight	Stick	Inches
6	11.40 in.	16.9	9.9
8	11.25	9.9	9.9
9	9.25	10.0	9.0
10	10.55	8.5	9.0
	10.33	9.0	

Stevens "q" and "r" were marked by arrow and date to stylus point. Friez (Hydroclimatic was checked and it has reached the top of the chart and is returning downward on return scale satisfactorily. (Arthur thinks it is not but I want to see if it is going to work right).

Stevens "s" measured 3.95 inches from base line, but it has measured 4.30 inches from base line. See attached sketch of what the trace looks like.

It was raining and snowing at the time these observations were made and is still doing just that at 1:00 p.m.

I now have, Thermohms (resistance thermometers) installed up to 9 feet, with one in the soil at 6" and one on the ground surface. Thermocouples installed at same levels, except one also at 12" in the soil. Bouyocoucs moisture blocks at 6 and 12 inches in the soil and a Bouyocoucs, electrical, liquid resistance thermometer connected by long cable so it can be placed in the snow or removed at our convenience. Ten-point rotary switch and six knife switches are installed and connected thru the Telthermoscope to Thermohms. All instruments have been wired or rewired for remote battery connection so batteries may be carried in pack-sack. Batteries are about 50% completed for installation in pack-sack.

Will rush this down to Arthur for mailing tonite and return to work on last of battery installation in pack.

Hope you are improving rapidly.

Regards,
 Bob Greal

P.S. Since I have no carbon paper, I obtained no copy of this letter. I will want a copy for my files some day. Bob G.